***Title**	**Effect of Thermo-Mechanical Treatment in Austenitic Condition on Flow Behaviour of Reduced Activation Ferritic-Martensitic Steel**
***Developed as part of**	Academic Study project
***Choose the Financial Year, during the Idea-PoC/Innovation Developed**	2022-2023
***Sector / Domain**	Material Science & Nuclear Industry
***Innovation Type**	Material Development
***Development Stage - Technology Maturity of the Solution/Innovation in terms of Technology Readiness Level TRL**	TRL 4 0r 5 0r max 6
Development Stage - Manufacturing Maturity of the Solution/Innovation in terms of Manufacturing Readiness Level (MRL)	-.

Development Stage: Investment Readiness Level of the Solution/Innovation (IRL).	-.
***Define the problem and its relevance to today's market / society / industry need (Max: 100 Words)**	Nuclear reactor components exhibit higher radio active elements even after its retirement from its function. One such instance is RAFM Steel and this steel is developed vigorously to terminate the above cause
***Describe the Solution / Proposed / Developed (Max: 100 Words)**	At present, most of the research on RAFM steels is focused on the evaluation and use of the steel in normalized and tempered heat treatment condition and the adjustment of chemical composition for improving the specific mechanical properties. Efforts are in progress to increase the microstructural stability of the steel by micro alloying with boron, cobalt, copper and controlon nitrogen content. Thermomechanical treatment (TMT) of the steel is another area,which is not explored fully, and which has high potential in enhancing the high-temperature properties of the steel without any change in chemical composition. The dislocation substructures produced on TMT process is expected to facilitate refinement of lath structure, and precipitation of numerous numbers of M23C6, and MX carbonitrides by providing nucleation sites thus leading to enhancement of properties.
***Explain the uniqueness and distinctive features of the (product / process / service) solution (Max: 100 Words)**	Use of TMT and designing the appropriate TMT cycle to improve the microstructural stability and texture hardening of RAFM steel.
***How your proposed / developed (product / process / service) solution is different from similar kind of product by the competitors if any (Max: 100 Words)**	Studying the effect of TMT on microstructure, hardness, tensile properties, flow and work hardening behaviour, RAFM steel and compare with those in normalized and tempered condition.
***Is there any IP or Patentable Component associated with the Solution?**	No

***Has the Solution Received any Innovation Grant/Seed fund Support?**	No
***Are there any Recognitions (National/International) Obtained by the Solution?**	No
***Is the Solution Commercialized either through Technology Transfer or Enterprise Development/Startup?**	No
***Had the Solution Received any Pre-Incubation/Incubation Support?**	No
***Video URL**	https://drive.google.com/drive/folders/1q3F21gT-s9xeIzB5BojI_mBVVL4EaTn0?usp=sharing
***Upload Photograph: (JPG, PNG max 2 MB)**	https://drive.google.com/drive/folders/12Tre0sJXQVqpTiFt6Sm1UHKNL_U-yOIE?usp=sharing
***Utility: Highlight the utility/value proposition (key benefits) aspects of the solution/innovation* (Max: 100 Words)**	Drastic innovation and Improvement in Nuclear industries
***Scalability: Highlight the market potential aspects of the Solution/Innovation (Potential Market Size, segmentation and Target**	worldwide increase in demand for the energy in the twenty first century has led to international cooperation to meet the energy needs without affecting the environment. The attention was drawn towards non-exhaustible and eco-friendly resources like nuclear energy.

users/customers etc.) **(Max: 100 Words)**	
***Economic Sustainability: Highlight commercialisation/business application aspects of the solution (how it is going to economic profitable and viable)** **(Max: 100 Words)**	The worldwide increase in demand for the energy in the twenty first century has led to international cooperation to meet the energy needs without affecting the environment. The attention was drawn towards non-exhaustible and eco-friendly resources like tidal energy, solar energy and nuclear energy. And Advancements in Nuclear sector will thus increase the efficiency f energy market
***Environmental Sustainability: Highlight environmental friendliness aspects and related benefit of the solution/innovation** **(Max: 100 Words)**	When the fusion reactor components with induced radio activity are replaced during operation of the old nuclear power stations, a considerable amount of radioactive waste is generated, which is to be disposed in a safe manner without creating any environmental effects. Depending on the alloying elements present in traditional ferritic/martensitic steels, it can take thousands of years for the decay of induced radioactivity.
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